



CSKT, MDT, WTI-MSU

PRIVATE LAND TECHNICAL ASSISTANCE

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In this issue:

Private Land Technical Assistance Project Summary:	
Foy's Bend Fisheries Conservation Area Restoration	Pages 2 - 3
Private Land Technical Assistance In The News:	Page 4
Private Land Technical Assistance Material Evaluation Results:	
Gallatin Valley E-Fence and Plot-Saver	Pages 5 - 6
Region 5 Game Damage Prevention Material Evaluation - Phase I:	Pages 7 - 8
Special Section on Wildlife Habitat Connectivity	
Crossing Structures Promote Gene Flow	Pages 9 - 10
Fences Cause Ecological Meltdown	Page 11 - 12
Update - National effort to reduce damage caused by feral swine:	Pages 13 - 14
Solicitation for Transportation Research Topics:	15



**Montana Fish,
Wildlife & Parks**

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PRIVATE LAND TECHNICAL ASSISTANCE: FEATURED PROJECT



Foys Bend Fisheries Conservation Area Restoration

FWP Project Staff:

Chris Hammond, Region 1 Nongame and Mitigation Biologist
Kris Tempel, Region 1 Fisheries Lands Program Resource Specialist

Project Partners:

Big Sky Watershed Corps Internship Program, Ducks Unlimited, Ecological Solutions Group, Flathead Audubon, Flathead Conservation District, Flathead Lakers, Flathead Land Trust, Forestation, FWP-Fisheries Mitigation Program, FWP-State Wildlife Grant Program, FWP-Wildlife Mitigation Program, Hans Sacrison-Adjacent Landowner, Montana Department of Transportation, Trout Unlimited, USDA-Forest Service, USDA-Natural Resources Conservation Service, U.S. Fish and Wildlife Service-Partners for Fish and Wildlife

The overall purpose of the Foys Bend Fisheries Conservation Area (FCA) Restoration Project was to preserve, create, enhance, restore, and protect the functional values of riparian lands, wetlands and other lands, and to conserve natural values including fish and wildlife habitat, water quality, flood water retention, groundwater recharge, open space, aesthetic values, and environmental education on the Flathead River. The project will help restore and maintain the habitat integrity of this portion of the Flathead River system where the Stillwater and upper Flathead merge and transition into the meandering lower Flathead River system. The project will highlight riparian and upland forest restoration methods while also providing examples of management options for



Original Fence

landowners where white-tailed deer conflicts exist, option examples include wildlife friendly fencing for boundary identification and deer exclusion fencing to protect restoration areas.

This project moved and modified existing boundary fences to provide wildlife friendly fencing as an example to neighbors and the public while reducing the potential for white-tailed deer entanglement. It also engaged partners to help remove unneeded interior fencing that was inhibiting wildlife movement.

PRIVATE LAND TECHNICAL ASSISTANCE PROJECT - Continued



A 3-strand wildlife friendly fence designed for sites with low or seasonal livestock use was constructed. Also constructed were reinforced wood post corners with metal t-posts used to run the distance between corners. A double twisted smooth wire was used to increase the visibility of the top strand. Along fence lines that did not require a boundary adjustment, barbed wire was removed and replaced with double twisted smooth wire and the remedies outlined on page 42 of *A Landowner's Guide to Wildlife Friendly Fences: How to Build Fence with Wildlife in Mind* were incorporated.

Given the location of Foys Bend FCA and the opportunity for restoration, it was chosen as a showcase property to provide Montana Fish, Wildlife & Parks and its partners with an opportunity to demonstrate riparian restoration strategies and management practices that benefit both fish and wildlife resources. This fencing project provides an opportunity to display alternative fence designs and illustrate the effectiveness of wildlife friendly fencing. Additionally, positive relationships with multiple landowners adjacent to the Foys Bend FCA have been developed and nurtured.

Completed: August 2013



In 2005, Utah State University researchers found one wild ungulate entangled per 2.5 miles of fence. Seventy percent of all mortalities were on fences higher than 40 inches.



Montana Fish, Wildlife & Parks

NEWS

Region 6, 54078 US Highway 2 West, Glasgow, MT 59230

Ron Selden, Information Officer ((406) 228-3723 * rselden@mt.gov

RELEASED: August 14, 2013

Nashua-Area Fence Removal Project Helps Migrating Pronghorns

NASHUA, Mont. – A dangerous chokepoint that migrating antelope encountered each year just west of Nashua now has one less hazard the animals will have to contend with.

Old woven-wire and barbed wire fencing strung for about a mile along U.S. Highway 2 has long served as a potential barrier for pronghorn and other wildlife trying to cross the busy road and get over an adjacent set of Burlington Northern-Santa Fe train tracks.

In fact, ground on both sides of the old fence -- which was removed by a Montana Fish, Wildlife & Parks Region 6 crew and others on Aug. 11 and 12 – is littered with skulls and skeletons of all sizes of antelope that didn't make it through the man-made gauntlet.

Instead of jumping fences, most pronghorn prefer to go under them whenever they can. But that's not possible with sheep-style fencing that has heavy-gauge wire panels right to the ground.

"Recent research conducted by Andrew Jakes, in cooperation with FWP, shows that migrating pronghorn are prone to being delayed in specific locations -- usually by fence lines -- during their migration," said FWP Glasgow-area biologist Drew Henry. "We especially saw that during the harsh winter of 2010-11, when hundreds of pronghorn died across Region 6 because of impassable fences, deep snowdrifts, and getting hit by cars, trucks and trains."

Henry said the Nashua location was identified through that research, and also by travelers along Highway 2, where the halted antelope were often forced to stage.

"We're trying to do whatever we can to clear away obstructions so pronghorn don't waste costly days during their annual migrations," Henry explained.

The property where the old fencing was removed is owned by Valley County, Jim Strodbeck and Jason Sauer, who gave their permission to proceed with the project. The FWP crew was assisted by Glasgow-area residents Darvin Henry, Bob Kemp Jr., and Andrew McKean and his son, Merlin, as well as Montana Department of Natural Resources and Conservation employees Matt Poole and Marc Kloker.

Nearly 7,000 feet of woven wire and about 3,000 feet of four-strand barbed wire fence – along with scores of metal posts -- were taken down and hauled out of the area. All of the wire and posts will be recycled.

"Special thanks to everyone who participated," Drew Henry said. "It's the type of project that benefits wildlife right from the start, and for years to come."

---FWP--

Gallatin Valley E-Fence and Plot-Saver Results

WHERE: North Gallatin Valley, Region 3

WHAT: Temporary 3-D electric fencing + Plot Saver as deer deterrent to agricultural plots

BACKGROUND:

Land managers in eastern and mid-western states have been protecting high-dollar crops and food plots from whitetail deer damage for decades. This project takes eastern US common practice and applies it in southwest Montana's backyard. The results offer FWP first-hand experience for another wildlife damage prevention technique to recommend to landowners who wish to protect actively growing crops. Many of the materials used for this project were supplied by the landowner.

METHODS:

This spring, the property manager planted 10 acres of sainfoin and used an FWP suggested design for 3-D fencing to enclose ½ of the plot (5 acres). The 3-D fence includes two different 2-strand electric wire strings. The outer fence is shorter, and the manager used the ribbon tape style electric wire. He also applied Plot Saver spray (provided by FWP) to the ribbon wire. The inner fence is taller, and a single wire was used. Deer density is high with at least 50 white-tailed deer using the area.

RESULTS:

This spring, the manager has been seeing very little deer use within the fences. He suggested the fence is about 80 - 90% effective at keeping deer out. A fence-line contrast is clear in the photos on the next page.

MANAGEMENT IMPLICATIONS AND SUGGESTIONS:

The manager thinks this is an effective design for reducing deer depredation on agricultural crops to an acceptable minimum level. It doesn't completely eliminate use, but as the photos show, reduces it dramatically.

For maximum effectiveness in future applications, the manager suggested the following:

- ♦ Three to four times a season, trim vegetation below the fence wires to prevent vegetation from shorting out the electric fence.



Project details submitted by
Julie Cunningham.



E-fence and Plot-Saver - continued

- ◆ Spray the top ribbons with Plot-Saver (or other deterrent spray) upon setting up the fence. This delivers a doubly negative experience to the deer, and may be more effective in teaching them not to jump the fence. He originally did not spray the fence right away, and thinks some deer learned to jump it.
- ◆ Use ribbon wire for visibility for both the outside and inside fences. Periodically trim below the fence wires to prevent vegetation from shorting out the electricity.

Specifications for this 5 acre project:

1. Ribbon wire: 4 rolls @ \$104.00 each:	\$416.00
2. Posts: 300 fiberglass posts, \$39.80/bundle, 20 in a bundle:	\$597.00
1. Insulators: 600 total, \$5.49/25 in a bag:	\$131.76
2. Corner posts: 5 @ \$5 each:	\$25.00
3. Solar Charger:	\$179.00
4. Ground Rod:	\$8.00
TOTAL COST:	\$1156.76



Time investment:

- ◆ Setup with two people = 4 hours total
- ◆ Time to trim vegetation under fences three to four times per summer to prevent growing vegetation from grounding out electric fence.



It is fairly easy to see the difference between the unprotected (left photo) and protected (right photo) areas.

Game Damage Prevention Material Evaluation - Phase I

FWP Project Staff: Jay Watson, Region 5

This project was initiated in October of 2013 to “**Field Test Net Wrapped Hay Bales, Effectiveness in Reducing Mule Deer Depredation.**”

Year 1 of the project was intended to be the control year where twine wrapped bales were monitored for deer damage using trail cameras throughout the winter. Bales would then be net-wrapped in 2014 and the process repeated. Monitoring began on November 4, 2013 and continued through March 27, 2014.

Overall mule deer use and damage was substantially less than in the winter of 2012-2013 when the landowner experienced heavy game damage. Mule deer use continued throughout the December – February period on an intermittent basis causing very little additional damage.



Net-Wrapped Round Bale



Damaged Non Net-Wrapped Bales

ends for the season. Except for about a one month period in December and early January snow did not stay on the ground for very long at any time. Chinook winds usually melted even the heaviest accumulations within a week or so after they occurred.

Weather conditions in this area were much more severe during the winter of 2013-2014 than in 2012-2013. This past winter was characterized by high snowfall amounts and brief periods of very cold weather. It is likely that total snowfall amounts will be double that of a normal year by the time the snow



Damaged Non Net-Wrapped Bales



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Game Damage Prevention

Material Evaluation - Phase I Continued

Mule deer numbers have been increasing in this area over the past two-three years. One would think that this, combined with the severity of the winter, would be a recipe for increased game damage to occur. There are several probable reasons that this did not happen.

Millers have always allowed hunting but it had been somewhat limited in the past because both husband and wife worked full time jobs outside of the ranch. This changed in 2013 when one of them quit their full time job to devote more time to ranch work. This also allowed them to accommodate more hunters. Twenty mule deer were harvested in 2012 and 32 during the 2013 season. The 52 deer taken off the ranch in a two-year period has noticeably decreased the local population.



Precipitation amounts went from being abnormally dry in 2012 and early 2013 to wetter than normal since that time. This was especially apparent during the late summer and early fall of 2013. Mule deer were probably somewhat nutritionally stressed early on in 2013 but overcame this later in the summer and went into the fall/winter in very good condition. In addition, native shrubs (which are abundant in this area) got a much needed boost in growth and provided an excellent winter food source for the deer.

Conclusion: Increased deer harvest by hunters and improved climatic conditions combined to decrease game depredation on haystacks at this project site. When first undertaken, it was assumed that mule deer would utilize the haystacks as they did in the winter 2012-2013 or even increase their use during the 2013-2014 winter. Although this did not happen and there is not an effective control year to compare back to when bales are net wrapped for the 2014-2015 winter, an objective qualitative evaluation of net wrapped bales will still be conducted.

Reported by Jay Watson - March 28, 2014



Crossing structures promote gene flow

Great Falls Tribune: March 19, 2014

Written by

Sepp Jannotta
MSU News Service

BOZEMAN — A first-of-its-kind study of Banff National Park bears by scientists with the Western Transportation Institute at Montana State University has shown that a system of wildlife crossing structures there is helping to maintain genetically healthy populations of bears spanning the Trans-Canada Highway.

The findings of the MSU genetics study, which collected some 10,000 hair samples from black bears and grizzlies, have been published in the British journal “Proceedings of the Royal Society B,” and a photograph of one of Banff’s wildlife overpasses is featured on the publication’s cover.



“Showing that the black bears and grizzlies using the crossings to traverse the highway are also breeding is a major finding,” said former MSU graduate student and WTI scientist Michael Sawaya, who wrote the paper as the final piece for his doctorate in ecology. “While there have been a lot of studies showing that wildlife are using these crossings, this is the first time anyone has shown that animals using the crossings are breeding often enough to ensure that the populations on either side of the highway are not being genetically isolated.”

MSU professor of ecology Steven Kalinowski, who was Sawaya’s doctoral adviser and co-author of the paper, agreed that the genetic evidence offers the best indication to date of the success of Banff’s system of wildlife crossing structures.

The crossings — there are currently 44 in all — form the most extensive system of wildlife crossing structures on the planet. In addition to reducing collisions, the crossings project was designed to prevent fragmentation of wildlife populations living along Canada’s busiest highway. Grizzly bears, Banff’s marquee predator, are often negatively impacted by roads, Kalinowski added, so any true measure of the project’s success has to account for the impact on that population, which the Alberta government currently lists as threatened.

“These wildlife crossing structures cost millions of dollars, and this is one of the first studies that has shown that they are doing what they are intended to do,” Kalinowski said. “If the bears aren’t crossing the road and breeding, you’re going to have fragmented and inbred populations on each side of the road.”

Crossing Structures - continued

The genetics paper is the third to come out of a three-year study of the crossings in the context of Banff's black bear and grizzly populations.



The project was launched in 2006 by Sawaya, Kalinowski and WTI researcher Tony Clevenger as a continuation of long-term research Clevenger has conducted in Banff since 1996. Previous papers discuss findings that show the number of bears in the Bow Valley and the proportion moving across the highway.

The final paper, which focuses on the flow of genes through the population, was able to highlight how many of the bears that crossed the Trans-Canada Highway had sired or birthed cubs. The WTI group extracted DNA from hair samples collected at wire snares located at the crossings and compared those data with the DNA from samples collected far and wide within the surrounding habitat on both sides of the highway.

Sawaya said some individuals did more than others to show they were comfortable finding mates on either side of the highway. One particular black bear male was particularly keen to do his part, with paternity tests revealing that he had mated with five females in the process of siring 11 cubs.

Sawaya said the study also reinforced a common assumption among ecologists that grizzly bears are much more shy of human infrastructure than black bears, though project data suggest that once an individual grizzly is accustomed to using the crossings, that bear will cross the highway readily and, in the case of females, may pass the habit on to offspring. In all, parentage tests showed that 47 percent of black bears that used crossings had successfully bred, while 27 percent of grizzly bears had done so.

Sawaya said having the paper accepted into a prestigious international journal is a welcome culmination to his studies at MSU.

"It's really nice to end it on high note," Sawaya said. "Publishing my last dissertation chapter in such a well-respected journal is very gratifying to me, and being featured on the journal's cover is great recognition of a cooperative effort by WTI, Parks Canada and various conservation foundations to assess the success of the crossing structures."

Kalinowski said the study also reflects well on the type of scientists coming out of MSU's ecology program.



"MSU has proven once again it is really good at producing young researchers who can do top-notch science while working in the field in very arduous conditions, whether it's tracking wolves in Yellowstone on snowshoes when it's 20 below zero or drilling through the Antarctic ice sheet to study glacial lakes, or, as Mike Sawaya has shown, hiking into remote valleys in the Canadian Rockies to study the movement and mating of grizzly bears," Kalinowski said.

Fences cause 'ecological meltdown'



NEW YORK (April 3, 2014)

Wildlife fences are constructed for a variety of reasons including to prevent the spread of diseases, protect wildlife from poachers, and to help manage small populations of threatened species. Human–wildlife conflict is another common reason for building fences: Wildlife can damage valuable livestock, crops, or infrastructure, some species carry diseases of agricultural concern, and a few threaten human lives. At the same time, people kill wild animals for food, trade, or to defend lives or property, and human activities degrade wildlife habitat. Separating people and wildlife by fencing can appear to be a mutually beneficial way to avoid such detrimental effects. But in a paper in the journal *Science*, published today, April 4th, 2014, WCS and ZSL scientists review the 'pros and cons' of large scale fencing and argue that fencing should often be a last resort.

Although fencing can have conservation benefits, it also has costs. When areas of contiguous wildlife habitat are converted into islands, the resulting small and isolated populations are prone to extinction, and the resulting loss of predators and other larger-bodied species can affect interactions between species in ways that cause further local extinctions, a process which has been termed "ecological meltdown".

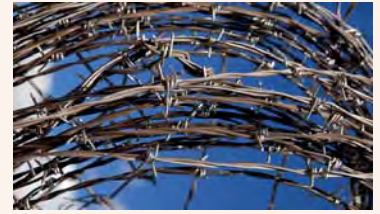
"In some parts of the world, fencing is part of the culture of wildlife conservation – it's assumed that all wildlife areas have to be fenced. But fencing profoundly alters ecosystems, and can cause some species to disappear. We're asking that conservationists as well as other sectoral interests carefully weigh up the biodiversity costs and benefits of new and existing fences," said ZSL's Rosie Woodroffe, lead author of the study.

In addition to their ecosystem-wide impact, fences do not always achieve their specific aims. Construction of fences to reduce human–wildlife conflict has been successful in some places but the challenges of appropriate fence design, location, construction, and maintenance mean that fences often fail to deliver the anticipated benefits. Ironically, in some places, fences also provide poachers with a ready supply of wire for making snares.



Janaina Matarazzo Photography

Ecological Meltdown - Continued



Co-author Simon Hedges of WCS said: "A variety of alternative approaches – including better animal husbandry, community-based crop-guarding, insurance schemes, and wildlife-sensitive land-use planning – can be used to mitigate conflicts between people and wildlife without the need for fencing. WCS projects working with local people and government agencies have shown that human–elephant conflict can be dramatically reduced without using fences in countries as different as Indonesia and Tanzania."

Co-author Sarah Durant of ZSL's said, "An increased awareness of the damage caused by fencing is leading to movements to remove fences instead of building more. Increasingly, fencing is seen as backwards step in conservation."

The desire to separate livestock from wildlife in order to create zones free from diseases such as foot and mouth has resulted in extensive fencing systems, particularly in southern Africa. Some of these fences have had devastating environmental effects. Fortunately, it is increasingly recognized that a combination of improved testing, vaccination, and standardized approaches to meat preparation can prevent spread of diseases without the need to separate cattle from wildlife by fencing.

The authors conclude that as climate change increases the importance of facilitating wildlife mobility and maintaining landscape connectivity, fence removal may become an important form of climate change preparedness, and so fencing of wildlife should be avoided whenever possible.

Source: Wildlife Conservation Society



Janaina Matarazzo Photography

Rocky Mountain Elk Foundation Volunteers Improve Fences in Montana:

In May 2010, more than 30 volunteers gathered to remove barbed-wire fencing damaged by elk on three ranches bordering the Elkhorn Mountains outside of Helena, Montana.

On June 16, 2012, sixteen volunteers, including two children under the age of 12, along with five dogs and a collection of game carts, fencing pliers, sidecutters, plus a whole lot of determination, removed nearly 1.5 miles of four-strand, barbed-wire fencing in the Sawmill Creek drainage located in the magnificent Big Hole Valley south of Butte.

Update: National effort to reduce damage caused by feral swine

Undersecretary for U.S. Department of Agriculture's (USDA) Marketing and Regulatory Programs Edward Avalos announced that the agency is kicking off a national effort to reduce the devastating damage caused by feral, or free ranging, swine. The \$20 million program aims to help states deal with a rapidly expanding population of invasive wild swine that causes \$1.5 billion in annual damage and control costs.

"Feral swine are one of the most destructive invaders a state can have," said Undersecretary Avalos. "They have expanded their range from 17 to 39 states in the last 30 years and cause damage to crops, kill young livestock, destroy property, harm natural resources, and carry diseases that threaten other animals as well as people and water supplies. It's critical that we act now to begin appropriate management of this costly problem."

The Wildlife Services (WS) program of USDA's Animal and Plant Health Inspection Service (APHIS) will lead the effort, tailoring activities to each state's circumstance and working closely with other Federal, State, Tribal, and local entities. WS will work directly with states to control populations, test animals for diseases, and research better methods of managing feral swine damage. A key part of the national program will include surveillance and disease monitoring to protect the health of our domestic swine.

Feral swine have become a serious problem in 78% of all states in the country, carrying diseases that can affect people, domestic animals, livestock and wildlife, as well as local water supplies. They also cause damage to field and high-value crops of all kinds from Mid-western corn and soybeans to sugar cane, peanuts, spinach and pumpkins. They kill young animals and their characteristic rooting and wallowing damages natural resources, including resources used by native waterfowl, as well as archeological and recreational lands. Feral swine compete for food with native wildlife, such as deer, and consume the eggs of ground-nesting birds and endangered species, such as sea turtles.



"In addition to the costly damage to agricultural and natural resources, the diseases these animals carry present a real threat to our swine populations," said Avalos. "Feral swine are able to carry and transmit up to 30 diseases and 37 different parasites to livestock, people, pets and wildlife, so surveillance and disease monitoring is another keystone to this program."

'In order to hold a wild pig population stable, studies suggest between 50 and 70 percent of the animals must be removed annually...'

Texas A&M Extension

National effort to reduce damage caused by feral swine - continued

As part of the national program, APHIS will test feral swine for diseases of concern for U.S. pork producers, such as classical swine fever, which does not exist in the United States, as well as swine brucellosis, porcine reproductive and respiratory syndrome, swine influenza, and pseudorabies. Ensuring that domestic swine are not threatened by disease from feral swine helps ensure that U.S. export markets remain open.

APHIS aims to have the program operating within 6 months and funding for the comprehensive project includes, among other things:

- \$9.5 million for state projects
- \$1.4 million for establishing procedures for disease monitoring, including the development of new surveillance and vaccination methods
- \$1.5 million for WS' National Wildlife Research Center to conduct research and economic analyses to improve control practices
- \$1.6 million for the centralization of control operations, and for making them safer and more cost-effective

Initial state funding levels will be based on current feral swine populations and associated damage to resources. Because feral swine populations, like most wildlife, cross international borders, APHIS will also coordinate with Canada and Mexico on feral swine damage management.

"We've already begun this type of work through a pilot program in New Mexico," said Avalos. "Through this pilot program, we have successfully removed feral swine from 1.4 million acres of land. By applying the techniques such as trap monitors and surveillance cameras we have developed through this pilot project, we aim to eliminate feral swine from two States every three to five years and stabilize feral swine damage within 10 years."

Source: Feedstuffs, April 2, 2014



Montana Department of Transportation Research

(Be thinking about research projects for next spring.)

The Montana Department of Transportation (MDT) conducts research to serve the public by supporting a transportation system and services that emphasize quality, safety, cost effectiveness, economic vitality, and sensitivity to the environment. You are encouraged to submit your research ideas through this solicitation process.

Research ideas must be submitted on the MDT Research Topic Statement form.

The topic statements should include:

1. Title;
2. Topic statement;
3. Background information;
4. Research proposed;
5. IT components;
6. Urgency and the benefits;*
7. Implementation plan;
8. Your name, title, affiliation, address, and phone number; and
9. MDT Champion and sponsor information



* Urgency and Benefits must include a description of how this research will serve the public by supporting a transportation system and services that emphasize quality, safety, cost effectiveness, economic vitality and/or sensitivity to the environment.

When topic statements are received, an internal champion and sponsor will be sought for each topic statement, if one is not listed. You are encouraged to speak with your peers within MDT to match your interests with our needs. This discussion often yields a champion for your research idea. Topic statements for which either a champion or sponsor cannot be found will not move forward.

Please note all research ideas submitted become public property. Submitters are not guaranteed to receive the contract for work resulting from any submitted research idea.

Please transmit the completed forms to Sue Sillick by April 30th of each year. Research staff will acknowledge each submittal and will later inform you of the status of your topic.

If you have any questions, please contact Sue by phone at [406-444-7693](tel:406-444-7693) or by [email](#).



MDT Expansion Bridge with Wildlife Paths

Wild turkey



Courtesy of CSKT, MDT & WTI-MSU



CSKT, MDT

To request hard copies of this Private Land Technical Assistance Bulletin or previous bulletins contact Joe Weigand at 444-3065 or joweigand@mt.gov.



MDT



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6x4 Wildlife Underpass for smaller species